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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,844	09/23/2004	Thomas Hasskerl	257543US0PCT	8107

22850 7590 07/28/2006

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EXAMINER

PENG, KUO LIANG

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 07/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/508,844	<b>Applicant(s)</b> HASSKERL ET AL.	
	<b>Examiner</b> Kuo-Liang Peng	<b>Art Unit</b> 1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12/6/05 IDS.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 23-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/6/05, 9/23/04</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. The Applicants' preliminary amendment filed on September 23, 2004 is acknowledged. Claims 1-22 are deleted. Claims 23-43 are added. Now, Claims 23-43 are pending.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 23-26 and 28-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Kanamori (US 6 335 061).

For Claims 23-25, 28-30, 32 and 34, Kanamori discloses a self-cleaning plastic article by coating/curing a plastic substrate such as polyethylene terephthalates, polycarbonate, PMMA, etc. with a siloxane coating (an adhesive layer) derived from composition (i) or (ii), followed by applying/curing a photocatalytic coating (top coat layer) containing TiO<sub>2</sub> derived from composition (I) or (II) thereon. (col. 2, line 66 to col. 4, line 36, col. 25, lines 32-42) Kanamori

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is silent on a step of adjusting the polar component of the surface energy of the cured siloxane set forth in the present invention. However, the instant claims are product-by-process claims. “Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process” In re Thorpe, 777 F. 2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The amount of the alkyltrialkoxysilanes is described in col. 6, lines 14-19. The adhesive layer can contain a polysiloxane having a molecular weight described in col. 7, lines 23-34. The amount of TiO<sub>2</sub> is described in col. 9, lines 10-18 and Examples. For Claim 26, since Kanamori’s substrates read on that of Applicants’, both should have the same impact strength. For Claim 31, since Kanamori’s adhesive layer is substantially the same as that of Applicants’, both should have the same polar component of the surface energy before surface treatment. For Claim 33, the particle size of the TiO<sub>2</sub> is described in col. 8, lines 12-47. For Claims 35-37, the thicknesses of the adhesive layer, topcoat layer and sum of these two layers are described in col. 25, lines 14-30. For Claims 38-42,

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since Kanamori's article is substantially the same as that of Applicants', both should have the same properties set forth in the instant claims.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kanamori (US 6 335 061).

Kanamori discloses a self-cleaning plastic article, supra, which is incorporated herein by reference. Kanamori is silent on the specific substrate thickness set forth in the instant claim. However, the substrate thickness can affect the strength of the coated article. In other words, the substrate thickness is a Result-Effective variable. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize a substrate having whatever thickness through routine experimentation in order to obtain a coated

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article with a desired strength. Especially, Applicants do not show the criticality of the substrate thickness. MPEP 2144.05 (II).

5. Claims 23-31 and 33-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanamori (US 6 335 061) in view of Street (WO 02/00785).

The following column and line numbers are based on Street's U.S. equivalent, US 6 743 520.

For Claims 23-25, 28-30, 34 and 43, Kanamori discloses a self-cleaning plastic article by coating/curing a plastic substrate such as polyethylene terephthalates, polycarbonate, PMMA, etc. with a siloxane coating (an adhesive layer) derived from composition (i) or (ii), followed by applying/curing a photocatalytic coating (top coat layer) containing TiO<sub>2</sub> derived from composition (I) or (II) thereon. (col. 2, line 66 to col. 4, line 36, col. 25, lines 32-42) Note that composition (ii) contains a vinyl polymer derived from itaconic acid, (meth)acrylates, (meth)acrylamides, etc. (col. 11, line 30 to col. 12, line 37) Kanamori is silent on a step of increasing the polar component of the surface energy of the siloxane coating. However, Street teaches a self-cleaning plastic article prepared by coating a substrate such as polycarbonate, polyacrylate, polyethylene terephthalate, etc. coated with a primer layer (an adhesive layer) and

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a top layer containing photocatalytic oxide such as  $\text{TiO}_2$  and a silicone resin. (col. 4, lines 36-57, col. 13, line 65 to col. 14, line 13) The adhesive layer can be prepared from a composition comprising polymer from (meth)acrylates, itaconic acid, (meth)acrylamides, etc. (col. 2, line 28 to col. 3, line 62) Street further teaches the modification of the surface of the adhesive layer by corona discharge, flame treatment, etc. The motivation is to further improve the adhesion to the top layer. (col. 12, lines 1-26) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to subject Kanamori's adhesive layer to Street's surface treatment. Since Kanamori's adhesive layer is treated with corona or flame that is the same treatment as taught in Applicants' specification (page 25, 1<sup>st</sup> paragraph), Examiner has a reasonable basis to believe that the polar component of the surface energy of Kanamori's adhesive layer is modified. Furthermore, it is noted that the polar component of the surface energy of the adhesive layer can affect the adhesion properties thereof. In other words, the polar component is Result-Effective variable. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to surface treat Kanamori's adhesive layer to afford a surface with whatever polar component of the surface energy through routine experimentation in order to obtain an adhesive layer with desired adhesion properties. Especially,

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Applicants do not show the criticality of the value of the polar component. See MPEP 2144.05 (II). The amount of the alkyltrialkoxysilanes is described in col. 6, lines 14-19. The adhesive layer can contain a polysiloxane having a molecular weight described in col. 7, lines 23-34. The amount of TiO<sub>2</sub> is described in col. 9, lines 10-18 and Examples. For Claim 26, since Kanamori's substrates read on that of Applicants', both should have the same impact strength. For Claim 27, Kanamori is silent on the specific substrate thickness set forth in the instant claim. However, the substrate thickness can affect the strength of the coated article. In other words, the substrate thickness is a Result-Effective variable. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize a substrate having whatever thickness through routine experimentation in order to obtain a coated article with a desired strength. Especially, Applicants do not show the criticality of the substrate thickness. For Claim 31, since Kanamori's adhesive layer is substantially the same as that of Applicants', both should have the same polar component of the surface energy before surface treatment. For Claim 33, the particle size of the TiO<sub>2</sub> is described in col. 8, lines 12-47. For Claims 35-37, the thicknesses of the adhesive layer, topcoat layer and sum of these two layers are described in col. 25, lines 14-30. For Claims



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38-42, since Kanamori's article is substantially the same as that of Applicants', both should have the same properties set forth in the instant claims.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuo-Liang Peng whose telephone number is (571) 272-1091. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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klp

July 18, 2006

  
Kuo-Liang Peng  
Primary Examiner  
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